SOME THYSANOPTERA OF MEXICO AND THE SOUTH I

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Aeolothrips vespiformis n. sp.

Length of body 1.6 mm.; general color dark brown, with first two and part of third abdominal segments light.

Head (Fig. 49 A) broader, posteriorly, than long, rounded uniformly from prothorax to insertion of antennae; distinctly retracted into prothorax; a notched projection between insertion of antennae; two spines on each side near posterior margin, and one near basal antennal segment; head giving a general hemispherical appearance. Eyes large, extending far under onto ventral side of head, coarsely facetted, not pilose. Ocelli present, large, conspicuous, marking an equilateral triangle between eyes. Mouth cone long, bluntly rounded; maxillary palpi three-segmented. Antennae lost, one basal segment, only, present; inserted very close to each other.

Prothorax (Fig. 49 A) longer and broader than head, broader anteriorly than posteriorly, and broader than long; sides roundly tapering posteriorly, with two mid-lateral spines and no others; head and prothorax at first sight, appear as a large elongate head, so closely are they united. Mesothorax narrowest at attachment to prothorax, diverging so that midlaterally it is a little wider than prothorax; sides converging to posterior margin of metathorax. Legs (Fig. 49 D) long, clothed with conspicuous spines; posterior tibiæ with a stout spine at tip; posterior tarsi long, second joint with numerous microscopic hairs. Wings (Fig. 49 C) moderately long, reaching a little beyond posterior margin of seventh abdominal segment; broadly rounded at tip; no cross veins present, but about one-third the wing's length from the tip the anterior longitudinal and ring vein bulge out and apparently unite; with a small clear area near base and another almost at the tip, and a larger clear area near center, occupying nearly one-fourth the wing's length and almost the entire width; eight spines on anterior longitudinal vein between base and central clear area, none on clear area, and seven beyond clear area; on posterior longitudinal vein, one spine between base and central clear area, four on clear area—two on proximal and two on distal portion,—and nine beyond clear area; a row of twenty-two spines on anterior margin, beginning at base of central clear area; posterior margin with long simple fringe; wings light brown, except above mentioned clear areas. Posterior wings almost clear, margins light brown; with long fringe on both margins.

Abdomen (Fig. 49 B) very narrow at attachment to thorax, subpetiolate, diverging to fully one and one-half the width of mesothorax; widest at sixth segment, converging abruptly to tip; third to fifth with one short spine on outer margin and segments six to eight with two; ninth with one long spine on each side on dorsal surface near outer margin, and anal segment with four spines on dorsal surface near anterior margin, and two small spines at tip. Segments one and two and posterior half of three white, the rest very dark brown, darker than thorax and head.

Measurements: Head, length 0.15 mm., width 0.24 mm.; prothorax, length 0.22 mm., width 0.27 mm.; mesothorax, width midlaterally 0.29 mm.; metathorax, width posteriorly 0.21 mm.; abdomen, width at base 0.10, at sixth segment 0.46 mm.; total length 1.59 mm.

Described from one female, taken by Prof. C. F. Baker in Managua, Nicaragua.

Food plant unknown.

This specimen was taken several years ago and, unfortunately, mounted on a pinned slip; consequently, the antennæ and all but one hing leg had been broken off before being mounted in balsam by the writer. Although some of the most important characters were thus destroyed, nevertheless it is plain that it belongs to the fam. *Aeolothripidae,* and to the genus *Aeolothrips,* in which I have placed it. It resembles closely *Ae. bicolor* Hinds, and *Ae. albocincta* Uzel, in having the basal portion of the abdomen white, abdomen more or less narrow at attachment to thorax, and, also, in the general aspect of the head and prothorax, though the shape of these differ in the different species. In *Ae. bicolor* and *albocincta,* however, the white band is on the second and third abdominal segments, while in *Ae. vespiformis* the first, second, and posterior half of third are white. The absence of cross veins presents not only a specific difference, but also a slight departure from the generic description as given by Hinds. It is hoped that other specimens of this same species, or some closely related to it, will at some future time be taken, and thus the true relationships of this imperfect specimen be made plain.

Heterothrips decacornis n. sp.

Average length 1.18 mm.; color dark brown, occasionally light brown; body surface reticulated.

Head (Fig. 50 A), one and one-half times as wide as long, slightly retracted into prothorax, broadest across cheeks, narrowed anteriorly, with concave depressions at insertion of antennae; cheeks arched, with two setigerous tubercles behind eyes on margin; no prominent spines on head; back of head reticulated. Eyes large, bulging; facets large, sometimes conspicuously protruding; pigment orange-yellow; eyes pilose. Ocelli remote from front, somewhat elevated, the anterior ocellus on anterior incline of elevated area, and directed forward; posterior ocelli contiguous with inner margin of eyes. Mouth cone medium, subacute; maxillary palpi three-segmented; labial palpi one-segmented. Antennae (Fig. 50 D) ten-segmented, without style at tip; III and IV lemon yellow, the rest dark brown; IV with pseudo-joint near base and a round sense area in the space cut off by the pseudo-joint; IV and V largest,

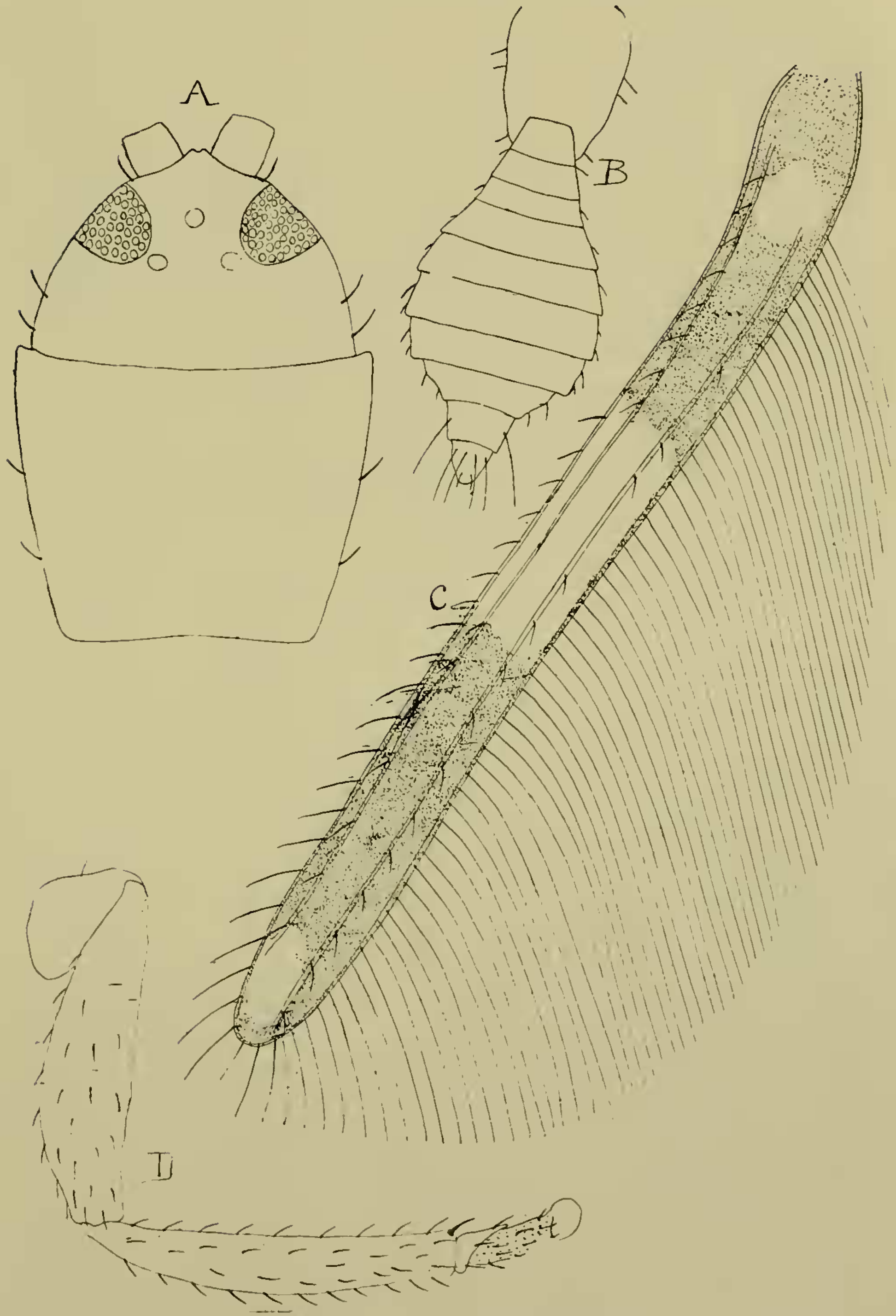

Figure 49. Aeolothrips vespiformis

with broad tip—IV with convex surface to receive base of V; V notched at tip to receive base of VI; VI to X all free, with small sense areas; antennal spines not very large.

Prothorax (Fig. 50 A) a little longer and wider than head; angles rounded; one spine on anterior angles, and one very inconspicuous spine on posterior angles; a few small spines on dorsal surface; reticulated. Mesothorax largest, with a triangular area on dorsal surface near the front more conspicuously reticulated than the rest. Legs (Fig. 50 E, F, G) medium; tibiae with moderately stout spines at tip; anterior tibiae light on distal half, the rest dark; fore-tarsi with small tooth at tip; middle and posterior tibiae dark; femora reticulated. Wings (Fig. 50 H) fully developed, broad at base, the rest narrow; with two longitudinal veins extending the entire length, set with short spines, twenty on anterior vein and sixteen on posterior; simple fringe on both margins, and a row of short spines on anterior margin posterior fringe longer; wings light brown, except basal one-sixth clear; scale small.

Abdomen (Fig. 50 B) uniform dark brown, usually very stout, occasionally slender; with two spines on dorsal surface in center of each segment, and a few small spines on margin; spines at tip of abdomen short; comb-like arrangement of spines on posterior margin of segments one to nine; surface reticulated.

MALE: Much smaller than female, but similar in every respect except tip of abdomen; with two claspers on posterior margin of anal segment (Fig. 50 C).

Measurements of female: Head, length .13 mm., width .19 mm.; prothorax, length .145 mm., width .26 mm.; pterothorax, width .25 mm.; abdomen, length .61 mm., width .28 mm.; total length 1.18 mm. Antennae: I .020, II .032, III .021, IV .058, V .044, VI .025, VII .028, VIII .017, IX .016, X .020; total length .28 mm.

Described from twenty-six females and ten males.

Food plant: A low native tree, with small yellow flowers, common in the barrancas near Guadalajara; also a shrub belonging to the family *Malpighiaceae*.

Locality: Guadalajara, Mexico. (Crawford.)

There is no doubt as to the antennae being 10-segmented, for in some of the mounted specimens used in this study, the segments are completely separated at every true joint. The last five segments are smaller and free, as described in some *Aeolothripidae*. There is no differentiation of the style, which is present in most *Thripidae*. In one deformed specimen the left antenna is eight-segmented (Fig. 50 I), the right possessing the ten normal segments. This is evidently a reversion to the normal type of *Thripidae*, the three basal segments being similar to the normal, but the fourth is shortened and has apparently two pseudo-joints instead of one in the normal, the fifth being somewhat similar to the normal except that it is not notched at the distal end, but is convex like the normal fourth; the last five segments of the normal antenna are represented in this case by three relatively longer segments; the arrangement of the antennal spines is similar in the two cases.

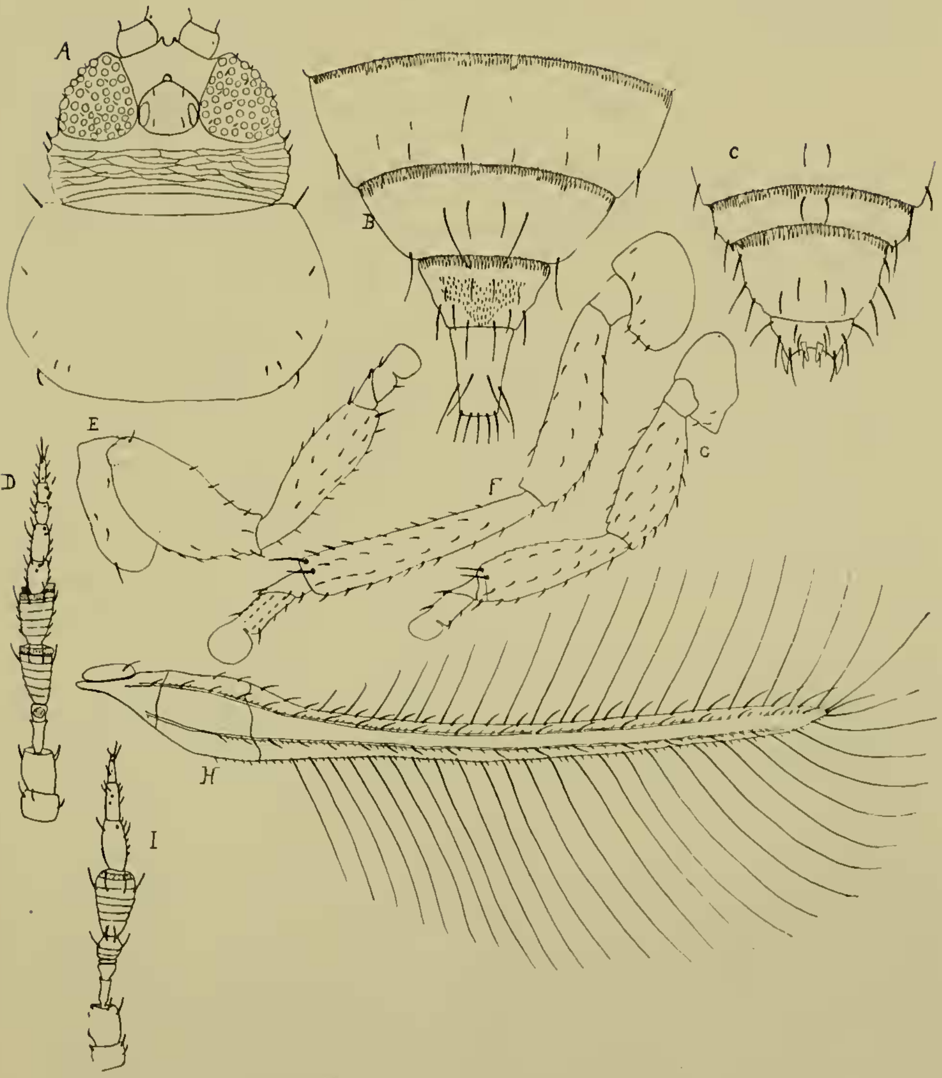

Figure 50. Heterothrips decacornia

In the main, this species conforms to the characterization of the genus *Heterothrips* Hood, but in one or two peculiarities it does not: (1) antennae clearly 10-segmented; (2) prothorax much less than twice as long as head; (3) rows of minute teeth extending across entire posterior dorsal margins of abdominal segments two to eight. These characters, however, are not necessarily of generic value. The general type of the antennae in this genus is unmistakable.

Chirothrips mexicana n. sp.

Length, .86 mm.; general color, medium brown.

Head (Fig. 51 A) somewhat wider than long, small, spatulate and narrowed anteriorly; cheeks arched, about two-fifths as long as eye; portion between posterior margin of eyes and occiput *very* much elevated, arched and reticulated, bearing the ocelli on the abrupt incline from the occiput to the vertex; front prolonged triangularly between insertion of antennae; with eight small spines in front of the ocelli, and two very small postocular spines on each side. Eyes moderately large, finely facetted, slightly pilose; distance between eyes less than half the greatest width of head; ocelli small, pale, situated far back on elevated portion of head, between posterior angles. Mouth cone moderately long, broadly rounded at tip; maxillary palpi consisting of three very short segments; labial palpi one-segmented. Antennae (Fig. 51 B) twice as long as head, stout, with only a few small spines; general color lighter than body—basal segment concolorous with body, and second lemon yellow; basal segment large, transversely egg-shaped, the point outward, with dark transverse line; segment II prolonged outwardly into a long acute apophysis with a small sense cone at tip; III pedunculate, asymmetrically pyriform, with a prominent sense cone on outer anterior angle, as has, also IV; IV and V roughly rounded, V smaller than IV; VI elongate, with two small sense cones on distal half; VII and VIII small, moderately slender.

Prothorax (Fig. 51 A) about two and one-half times as long as head, one and one-ninth times as wide as long, more than twice as wide posteriorly as anteriorly; sides' with a deep indentation above coxae and a short, black chitinised line curving in from it; with one prominent spine on posterior angles and a few small inconspicuous ones on dorsal surface; dorsal surface deeply reticulated. Metathorax wider than prothorax, and pleurae bulging beneath insertion of wings. Pterothorax reticulated. Wings (Fig 51 H) long and narrow, reaching beyond tip of abdomen; forewings light brown, surface covered with microscopic hairs; hind wings lighter colored; fore-wing with one median longitudinal vein, which disappears before the middle of the wing; with five spines on median vein, and five on apical half of wing, arranged as though the two longitudinal veins were present; anterior margin with row of twenty-six long slender fringe-like spines; posterior fringe long. Legs (Fig. 51 E, F, G) short, with only a few small spines; fore-femora (Fig. 51 E) enormously thickened, trapezoidal, nearly as broad at base as long; fore-tibiae short and thick; fore-tibiae and all tarsi lemon yellow.

Abdomen elongate-ovate, bluntly pointed at tip, about one and four-fifths times as long as broad; spines on last two segments (Fig. 51 C) moderately long and stout; segments one to five distinctly beaded (Fig. 51 D) on posterior dorsal margin, five less so than the others; surface deeply deticulated.

Measurements: Head, length .084 mm., width .096 mm.; prothorax, length .19 mm., width .21 mm.; pterothorax, width .24 mm.; abdomen, width .23 mm.; total length .86 mm. Antennae: I .027 mm., II .025 mm., III .023 mm., IV .022 mm., V .024 mm., VI .028 mm., VII .011 mm., VIII .011 mm.; total ,.17 mm.

Described from one female.

Food plant: Tobacco flowers (*Nicotiana tabacum*).

Locality: Guadalajara, Mexico. (Crawford.)

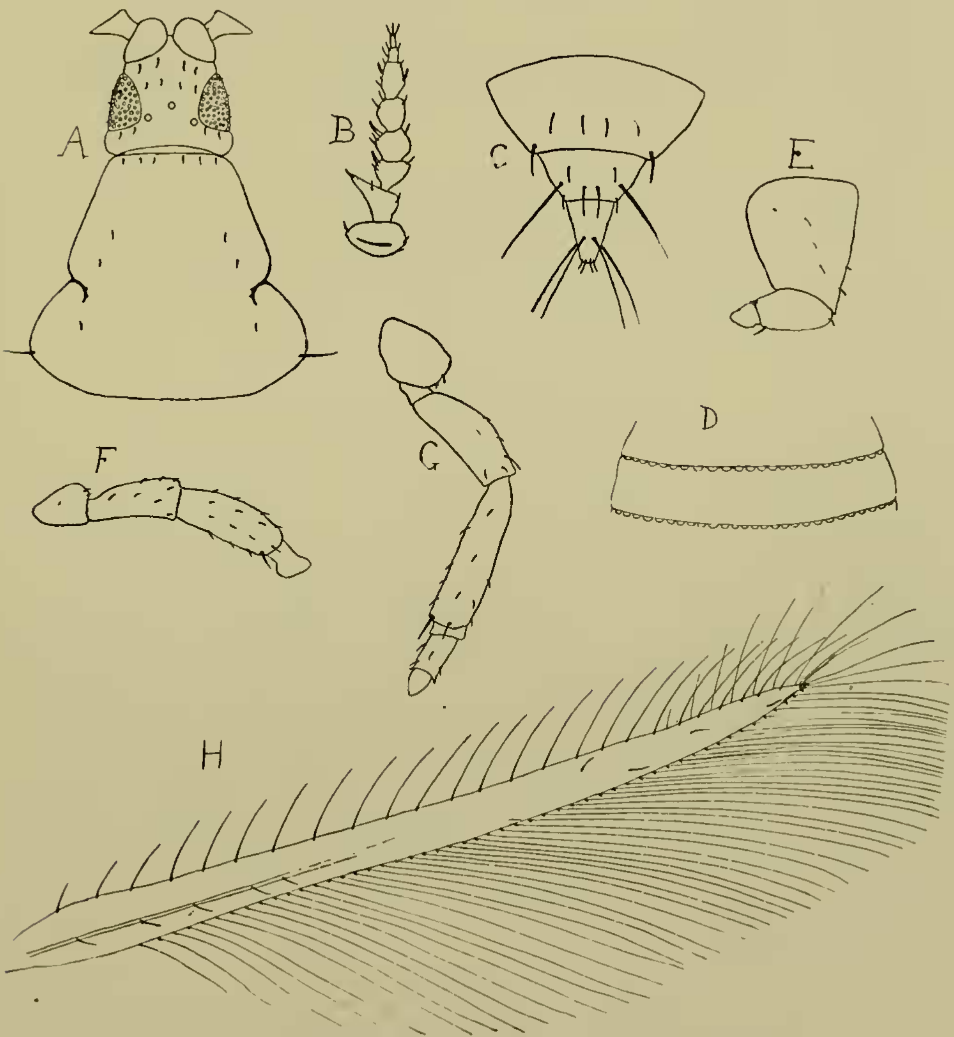

Figure 51. Chirothrips mexicana

Euthrips insularis Franklin var. reticulata n var.

Mr. Franklin speaks of the species as being very common throughout the Barbadoes and West Indies; it is perhaps the most common species, also, in the region of Guadalajara, Mexico. Hundreds of specimens were taken by the writer on various flowering plants—several species of *Lupinus, Convolvulus,* Compositae, and a *Rhamnus,* the localities ranging in altitude from 2500 feet above sea level to 10,000 feet. There is quite a marked variation in the species. All the specimens have a reticulated body surface, some more markedly than others—this character is not mentioned in the description of *Eu. insularis;* the general color varies from dark brown, almost black, to very light yellowish brown. The antennae vary in the shape, color, and relative lengths of the segments; some, as in Mr. Franklin's descriptions, have the third and fourth segments yellow, the fourth darker on distal half; others have the third and fourth segments uniformly yellow; the shape of the segments varies from slender, as in the description, to comparatively stout; nor are the relative lengths of the segments constant. The wings, also, vary in length considerably.

It seems that the most constant characters of this species are (1) the arrangement of the cephalic and thoracic bristles, (2) the comb-like arrangement of spines on the posterior dorsal margin of the eighth abdominal segments, (3) a large clear area at base of fore-wings, (4) antennae eight-segmented, with the third segment yellow, and (5) in the Mexican variety, reticulation of head, thorax, abdomen and femora.

Rhaptothrips, new genus

Head small, rectangular; eyes extremely small, with a few facets on outer side; ocelli wanting. Antennae seven-segmented, long and slender, third segment very elongate. Mouth cone of medium size, very blunt at tip; maxillary and labial palpi one-segmented. Prothorax about as long as head, wider posteriorly than anteriorly; pterothorax much broader than prothorax, with a facetted spiracular(?) plate on anterior angles of mesothorax. Entire dorsal surface from mesothorax to eighth abdominal segment inclusive covered with irregular chitinous, setigerous plates, this irregular arrangement giving the insect a curious patched appearance. Posterior coxae almost as widely separated as second coxae. Legs of medium size, with several very long slender spines on femora and tibiae, and one large spear-shaped horizontal spine on apical end of tibiae. Wings wanting so far as known. Abdomen long and slender, with facetted spiracular plates (sense organs?) on second and eighth segments; all spines occur on the chitinous plates; ninth segment heavily chitinized, tube nearly as long as ninth segment, converging to tip, with two short apical spines.

Rhaptothrips peculiaris n. sp.

Total length of body 4.12 mm.; general color black.

Head (Fig. 52 A) small, about one and one-fourth times as long as broad, and about as long as prothorax; cheeks parallel; anterior angles concave to receive antennae; a concavity between insertion of antennae; four inconspicuous spines on anterior half of dorsal surface, one pair in front and the other pair behind the eyes, and one small spine on each cheek. Eyes extremely small, dark, with two or three widely separated facets, which are light, the rest of the eye apparently blind; no ocelli present. Mouth cone long, broad, and broadly rounded at tip, reaching almost to posterior margin of prothorax; maxillary and labial palpi one-segmented, the latter short. Antennae (Fig. 52 D) seven-segmented, long and slender, more than two and one-half times as long as head; two basal segments rectangular in shape, I shorter than II; III very elongate, enlarged at both ends, sides rough; IV to VI elongate, but shorter than III, with a sense cone on distal end of each; VII bluntly pointed at tip, with an obscure suture just beyong the middle and another more obscure midway between the first suture and the tip; segments II, III, and VII with three or four long slender spines at apical end; IV to VI with one spine on side opposite to the sense cone; III light brown, except distal one-sixth, the rest of the segments concolorous with body.

Prothorax (Fig. 52 A) about one and two-thirds times as wide as long, narrowed anteriorly and bulging midlaterally, partly due to fore-coxae; two rectangular chitinous plates between fore-coxae, each bearing two spines; no other spines on prothorax. Mesothorax (Fig. 52 A) about as long as prothorax, and one and one-half times as wide posteriorly; sides diverging to midpoint, and from there to posterior margin of metathorax, sides about parallel, slightly diverging; with a pair of large facetted spiracular plates (Fig. 52 H) near anterior angles, with closely crowded facets; dorsal surface of both meso- and metathorax and all but two anal abdominal segments, with irregular chitinous plates (Fig 52 A), most of which bear one spine, a few with two spines, and some with none; these are scattered promiscuously over the dorsal surface, and are distinctly convex; spines moderately long and stout; the rest of the body surface, both dorsal and ventral, apparently very weakly chitinized. Metathorax shorter and slightly wider than mesothorax, diverging somewhat to midpoint of pleurae, and then converging, but slightly wider posteriorly than anteriorly; hind coxae almost as widely separated as middle pair. All thoracic spines set on chitinous plates. Legs (Fig. 52, E, F, C) moderately long, with roughened surface; with several extremely long and slender spines on all femora and tibiae, and several other shorter ones on each; distal end of tibiae, without, with a very long, remarkable, spear-shaped spine (Fig. 52 G); tarsi almost abortive; middle tarsi with a heavy setigerous projection on each side of the bladder. Wings not present.

Abdomen (Fig. 52 B) long, uniformly tapering from posterior margin of metathorax to tip; segments one to six, with numerous irregular chitinous plates; as described above, and segments seven and eight with two or three larger and more symmetrical plates, with several spines; two anal segments long and tube-like, and heavily chitinized over entire surface, deep black; ninth segment with eight long slender bristles on distal end; anal segment

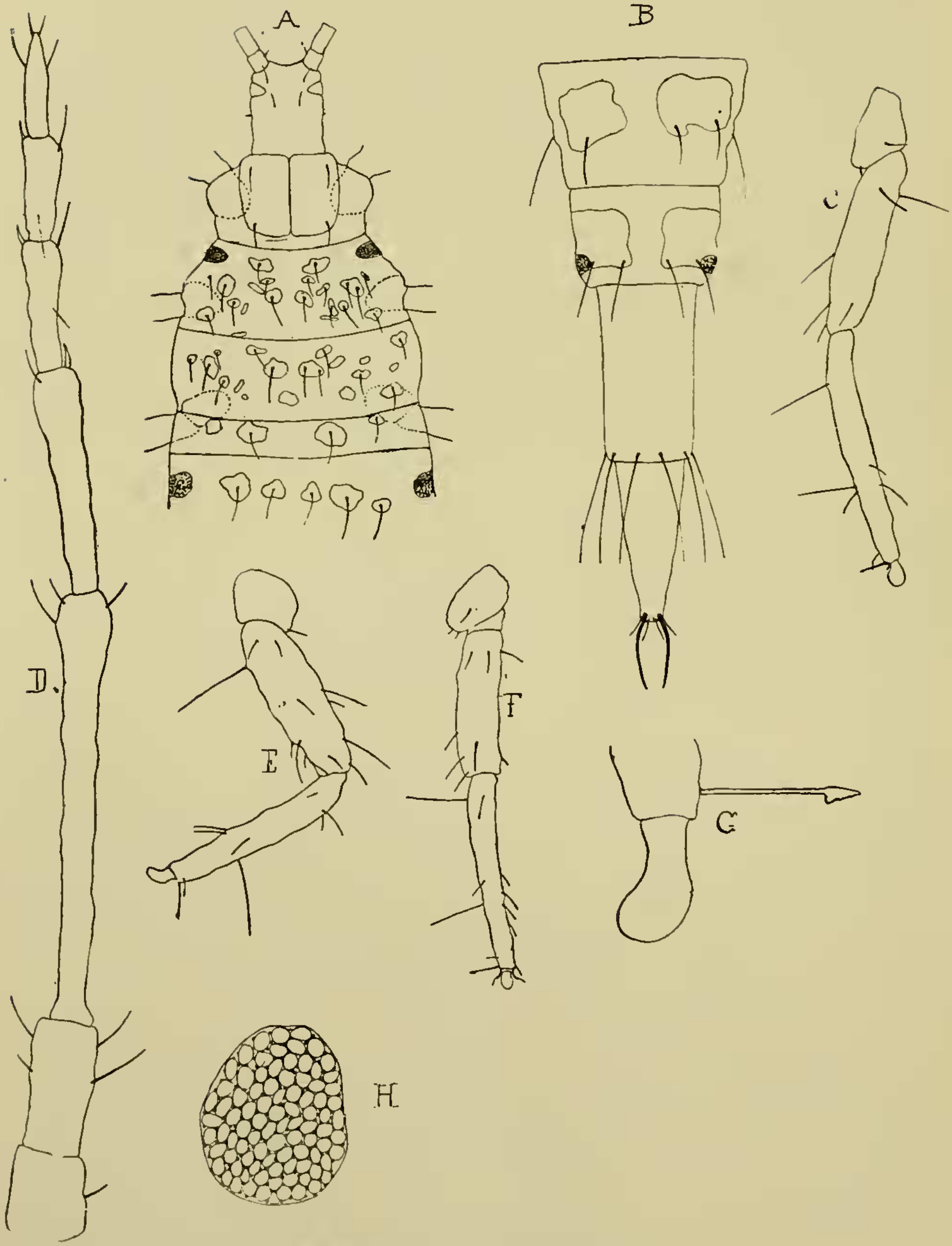

Figure 52. Rhaptothrips peculiaris

with two extremely stout and moderately long bristles at tip, and four short inconspicuous ones, also; second and eighth segments with spiracular plates on each side, as described on mesothorax; nearly all abdominal spines set on chitinous plates.

Before treatment in caustic potash and clearing in clove oil, the general color of the insect is a deep black; but after clearing, the chitinous plates appear dark brown and the rest of the surface a clear transparent shade, showing that the whole surface, in the natural state, is darkly pigmented, but this pigment is more easily removed from the weakly chitinized portions. Owing to the deep pigmentation of the two anal segments, it is difficult to determine the sex of the insect.

Measurements: Head, length .35 mm., width .27 mm.; prothorax, length .34 mm., width .54 mm.; mesothorax, width .82 mm.; metathorax, width .85 mm.; distance between mesocoxae .50 mm.; between posterior coxae .47 mm.; abdomen, width .86 mm.; tube, length .34 mm.; total length 4.12 mm. Antennae: I .065 mm., II .097 mm., III .31 mm., IV .17 mm., V .096 mm., VI .076 mm., VII .075 mm.; total .88 mm.; color, natural, black.

Described from one specimen. The writer, while on a trip up the slopes of San Pedro mountain, near Guadalajara, reached into a thorny solanaceous shrub to capture a beetle, and a moment later discovered this thysanopterous insect on his hand; repeatedly beating the same shrub failed to bring forth any more of the insects.

Food plant: A certain spiny solanaceous plant.

Locality: San Pedro mountain, near Guadalajara, Mexico.; altitude 8000 feet. (Crawford.)

It might be noted here that there is somewhat of a similarity between this species and members of the Fam. *Urothripidae* Bagnall; in that family the palpi are one-segmented, the antennae seven-segmented, and the posterior coxae widely separated, though the middle pair are more so. But inasmuch as *Kladothrips* Froggatt, *Allothrips* Hood, and *Neothrips* Hood, all have the antennae seven-segmented, and, furthermore, since this species does not possess the eleven pairs of stigmata, the posterior coxae are not most widely separated, and the bristles and spines are not by any means absent or obsolete, therefore it is most reasonable to suppose that this new genus—for it probably is such—belongs in the family *Phloeothripidae*, necessitating, however, some slight modification of the diagnosis of that family. A difference in palpi and antennae is hardly enough to erect a new family on, when such differences are frequently of questionable generic value.